

*REMARKS/ARGUMENTS*

The amendments set out above and the following remarks are responsive to the points raised by the Office Action dated October 17, 2007. In view of the amendments set out above and the following remarks, reconsideration is respectfully requested.

*Amendments to the Claims and Specification*

Claims 28-29 are added, and claim 18 is cancelled, so that claims 1-17 and 27-29 are pending. Claims 1 and 16 are amended to define the invention more clearly.

The specification is amended to recite an inherent property of the photoinitiators listed in the specification at page 3, lines 3-5. Amended claims 1 and 16, and new claims 28 and 29, also recite these inherent properties. No new matter is added, and support for the amended claim language may be found within the original specification, claims, and drawings. Claims 1, 16, 28 and 29 are supported at, for example, page 3, lines 1-5; page 2, line 20; and page 2, lines 33-36 of the specification.

*Claim Rejections*

Claims 1, 2, 12, 13, and 15 were rejected under 35 U.S.C. § 103 as unpatentable over what the Office Action characterizes as Applicant's Admitted Prior Art (AAPA) in view of U.S. Patent No. 5,541,183 to Teng (hereinafter, "Teng"), and further in view of U.S. Patent No. 5,317,080 to Arimatsu et al. (hereinafter, "Arimatsu").

Claims 3-5 were rejected under § 103 as unpatentable over what the Office Action characterizes as Applicant's Admitted Prior Art (AAPA), Teng, and Arimatsu, and further in view of U.S. Patent No. 3,264,103 to Cohen et al. (hereinafter, "Cohen").

Claims 6-11 and 16-27 were rejected under § 103 as unpatentable over what the Office Action characterizes as Applicant's Admitted Prior Art (AAPA), Teng, and Arimatsu as applied to claim 1 and further in view of U.S. Patent Publication No. 2003/0054153 to Kuczynski et al. (hereinafter, "Kuczynski").

Claim 14 was rejected under § 103 as unpatentable over what the Office Action characterizes as Applicant's Admitted Prior Art (AAPA), Teng and Arimatsu as applied to

claim 1 and further in view of U.S. Patent No. 5,795,647 to Robinson et al. (hereinafter, "Robinson").

Each of these rejections is respectfully and separately traversed.

The Applicants continue to traverse the characterization of page 1, lines 4-9, 11, and 17-18 of the present application as Applicants' Admitted Prior Art (AAPA) and assert that these passages of the specification are not Admitted Prior Art. In the Preliminary Amendment filed July 2, 2004, the specification was amended to insert the heading "Field of the Invention" before the first paragraph on page 1 and the heading "Background" before the second paragraph. Because the Preliminary Amendment was filed concurrently with the instant application on July 2, 2004, the Preliminary Amendment is considered part of the original disclosure. See 37 CFR § 1.115 ("A preliminary amendment that is present on the filing date of an application is part of the original disclosure of the application"). These headings make clear that what is described in the first paragraph of the specification is the field of the invention, while what is described in the second paragraph is the background. This would, nevertheless, also be clear from the context of these passages.

Moreover, the first sentence of the second paragraph was amended to state that "methods and flexographic printing plates are already known." This statement makes it clear that it is only methods and flexographic printing plates *in general* that are known. The passage does not mean that the methods and flexographic printing plates *of the invention* are known. Nevertheless, even unamended, the reference to plates "of this type" as the first sentence of the Background section does not mean a plate with those specific characteristics was known; it only refers to plates of a general type. Also, the passage at page 1, lines 17-18 does not contain any statement that the method is known, and does not mean that any of the characteristics of the claimed method are known. Accordingly, the above passages of the specification cannot be characterized as AAPA.

Even assuming, *arguendo*, that the above passages can be considered to be AAPA, the presently pending claims are not obvious over the cited references for the following reasons.

The obviousness rejection of amended independent claim 1 cannot be maintained because none of the cited references teach or suggest each and every element of amended independent claim 1.

The semi-solid radiation-sensitive layer of Teng is very thin, i.e., at least one micrometer (col. 5, lines 12-14). This is fundamentally different from the claimed methods, which require the light sensitive layer to have a large thickness, i.e., 0.5 to 2 mm.

Examples 11 and 12 of Teng relate to the use of visible laser light for crosslinking a semisolid radiation sensitive layer. In Examples 11 and 12, Teng teaches including Irgacure 784 in the light sensitive layer as the photoinitiator. Teng also discloses thioxanthone, xanthone and titanocene (col. 6, lines 51-67). However, although Irgacure 784, thioxanthone, xanthone and titanocene have some absorption capacity in the visible and violet domain, these initiators can only be used to crosslink very thin layers (as is applicable to offset plates) because of their high extinction factor which makes them opaque to light. Accordingly, the light can only crosslink the layer material at the surface and cannot reach the material beneath the surface. Thus, in the method taught by Teng, only a very thin layer can be crosslinked throughout its thickness. In contrast, the claimed methods provide crosslinking throughout the entire thickness of a thick layer, i.e., a layer with a thickness between 0.5 to 2 mm.

The photoinitiators taught by Teng also do not provide a bleaching effect, as claimed. Without the bleaching effect, it is not possible to provide progressively deeper penetration of light into the layer to cure a thick layer throughout its thickness. The claimed bleaching effect destroys the long wavelength absorption of the layer during the photo-reaction, and causes any material that is already crosslinked or cured to lose its light absorption capability and become transparent to this light. After crosslinking of the surface of the layer, the claimed bleaching effect causes this already crosslinked layer to allow the passage of light so that the light can reach the deeper layer zones. The photoinitiators of Teng do not produce the claimed bleaching effect. Therefore, the obviousness rejection cannot be maintained.

The problems relating to the extinction factor of the photoinitiators is not addressed in Teng, nor does Teng discuss a bleaching effect. Therefore, in Teng, the application of visible light is limited to offset plate technology using very thin, light sensitive layers. Even for very thin layers in this domain, there is still a problem of insufficient sensitivity to the

light. It is for overcoming this problem that Teng proposes to use semi-solid layers, which are considered to have an increased sensitivity to the visible light, instead of solid light sensitive layers.

The claimed methods, on the other hand, provide a solution to the problem of the use of visible light for flexographic printing plates that are thick, e.g., between 0.5 and 2 mm and which include a light sensitive layer. The claimed methods advantageously provide a photoinitiator that undergoes a photoreaction under effect of a laser light having a wavelength between 390 to 410 nm to bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material. Such a bleaching effect that enables crosslinking throughout the thickness of a thick (between 0.5 and 2 mm) layer is not taught, suggested, or even possible in Teng. Accordingly, the obviousness rejection cannot be maintained.

None of the cited references teach or suggest a method for producing a flexographic printing plate having a light sensitive material with a thickness between 0.5 to 2 mm and including at least one photoinitiator sensitive to laser light having a wavelength from 390 to 410 nm, wherein the photoinitiator undergoes a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material, as claimed in claim 1 and 28.

Likewise, none of the cited references teach or suggest a flexographic printing plate made by the process of claim 1 or 28, wherein the light sensitive layer has a thickness between 0.5 to 2 mm and contains at least one photoinitiator sensitive to laser light having a wavelength of 390 to 410 nm, wherein the photoinitiator is capable of undergoing a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleached light sensitive material permits a progressively deeper penetration of the light into the light-sensitive layer in order to provide uniform cross-linking throughout the thickness of the layer of light sensitive material, as claimed in claims 16 and 29.

Because none of the cited references teach or suggest all of the limitations of independent claim 1, the obviousness rejection cannot be maintained.

Moreover, AAPA and Teng involve fundamentally different technologies and, therefore, cannot be combinable with one another. Teng teaches *offset* printing plates having a light sensitive material layer crosslinked by the use of visible laser light having a wavelength of 410 nm and a thickness of at least one micron (col. 5, lines 13-14). The present claims, on the contrary, are directed toward a method of making flexographic printing plates, which is a completely different technology from the technology involved in the manufacture of offset printing plates in Teng. Because Teng and the AAPA deal with fundamentally different technologies, they are not combinable with one another. Accordingly, the obviousness rejection cannot be maintained.

Not only is Teng in a different technology from AAPA and the claimed invention, but Teng teaches away from the claimed invention. Teng teaches the manufacture of imageable offset printing plates. Teng teaches that laser imagable negative lithographic plates having a semisolid radiation-sensitive layer can have significantly improved photospeed over plates having a solid radiation-sensitive layer of similar composition (col. 2, lines 46-49). This means that in Teng, the layer is made from a low molecular weight polymer, whereas in the case of the claimed methods, the layer is made from a high molecular weight polymer.

Teng further teaches that the use of a semisolid radiation-sensitive layer in laser imagable negative lithographic plates is unexpected because traditionally the radiation-sensitive layer of lithographic plates is formulated as a solid coating in order to avoid handling problems such as tackiness, finger printing, and blocking (col. 2, lines 46-55). Teng teaches coating the radiation-sensitive layer on a rough substrate in a conformal configuration, utilizing a thick overcoat to avoid the tackiness associated with a semisolid radiation-sensitive layer (col. 2, lines 56-64). Thus, Teng teaches away from the claimed invention.

Arimatsu, Cohen, Kuczynski, and Robinson fail to cure the deficiencies of AAPA and Teng. Arimatsu, Cohen, Kuczynski, and Robinson also fail to teach or suggest a method of making a flexographic printing plate, wherein the light sensitive layer has a thickness between 0.5 and 2 mm and includes a photoinitiator that undergoes a photoreaction under effect of a laser light having a wavelength between 390 to 410 nm to bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said

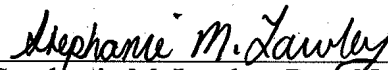
laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material. Thus, Arimatsu, Cohen, Kuczynski, and Robinson also fail to render the present claims obvious.

Since the independent claims are allowable for the reasons set forth above, the dependent claims are also allowable because they depend from allowable independent claims.

*Conclusion*

Applicants respectfully submit that the patent application is in condition for allowance. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

  
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